

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1-52. (Cancelled)

53. (Currently Amended) A medical device for use in a body lumen, the device comprising:

a first catheter shaft having a proximal end region, a distal end region, and a fluid lumen ~~therethrough~~ connecting the proximal end region and the distal end region;

a second catheter shaft slidably disposed within the first catheter shaft;

a guidewire slidably disposed in a lumen of the second catheter shaft;

a filter coupled to the guidewire;

a balloon coupled to the distal end region of the first catheter shaft;

a stent disposed adjacent the second catheter shaft,

wherein the balloon and the first catheter shaft are configured to stop fluid outside of the first catheter shaft proximal to the balloon from flowing distally past the distal region of the shaft when the balloon is expanded;

wherein the stent is self-expanding and configured to be deployed from a position between the distal end of the first catheter shaft and the filter; and

wherein the first catheter shaft defines a perfusion lumen configured for the passage of perfusing fluid supplied at the proximal end region therethrough so as to flush embolic debris into the filter.

54. (Previously Presented) The medical device of claim 53, wherein the second catheter shaft comprises a distal balloon and the stent is disposed about the distal balloon.

55. (Previously Presented) The medical device of claim 53, wherein the stent is disposed on the second catheter shaft.

56. (Previously Presented) The medical device of claim 55, wherein the stent is configured to shift between a first generally collapsed configuration and a second generally expanded configuration, and wherein the stent is self-biased to be in the second configuration.

57. (Previously Presented) The medical device of claim 56, wherein the stent is retained in the first configuration on the second catheter shaft by a retaining sleeve.

58. (Previously Presented) The medical device of claim 56, wherein the stent is retained in the first configuration on the second catheter shaft by the first catheter shaft.

59. (Previously Presented) The medical device of claim 56, wherein the self-biased stent is thermally activated.

60. (Previously Presented) The medical device of claim 53, wherein the device includes a perfusing fluid.

61. (Previously Presented) The medical device of claim 60, wherein the perfusing fluid is blood.

62. (Previously Presented) The medical device of claim 60, wherein the perfusing fluid is oxygenated.

63. (Currently Amended) The medical device of claim 53, wherein the first catheter shaft includes an infusion port within the proximal end region and proximal the balloon.

64. (Previously Presented) The medical device of claim 63, wherein the infusion port is configured to introduce blood into the perfusion lumen.

65. (Previously Presented) The medical device of claim 60, wherein the perfusion lumen is configured to direct the perfusing fluid at an inner surface of the body lumen.

66. (Previously Presented) The medical device of claim 53, wherein the device includes an aspiration catheter configured to remove embolic debris from the filter while the filter is percutaneously disposed in the body lumen.

67. (Previously Presented) The medical device of claim 66, wherein the aspiration catheter is configured to be slidably disposed in the first catheter shaft.

68. (Currently Amended) A medical device for use in a body lumen, the device comprising:

an outer catheter shaft having a proximal end and a distal end;

an inner catheter shaft slidably disposed in the outer catheter shaft, said inner catheter shaft having a proximal end and a distal end;

an elongate guidewire slidably disposed in the inner catheter shaft;

a filter coupled to the guidewire;

a balloon coupled to the outer catheter shaft; and

a self-expanding stent coupled to the inner catheter shaft,

wherein the balloon and the outer catheter shaft are configured to stop fluid from outside the outer catheter shaft proximal to the balloon from flowing distally past the balloon when the balloon is expanded; and

wherein at least one of the inner or outer catheter shafts define a perfusion lumen therein that is configured for perfusing fluid therethrough from an infusion port proximate the proximal end of the shaft so as to flush embolic debris into the filter.

69. (Previously Presented) The medical device of claim 68, wherein the stent is configured to shift between a first generally collapsed configuration and a second generally expanded configuration, and wherein the stent is biased to be in the second configuration.

70. (Previously Presented) The medical device of claim 69, wherein the stent is retained in the first configuration on the inner catheter shaft by a retaining sleeve.

71. (Previously Presented) The medical device of claim 69, wherein the stent is retained in the first configuration on the inner catheter shaft by the outer catheter shaft.

72. (Withdrawn) A method for flushing embolic debris into a filter, comprising the steps of:

- providing a catheter system, the system including an outer catheter shaft, an inner catheter shaft slidably disposed in the outer catheter shaft, a distal flushing port, a balloon coupled to the outer catheter shaft, and a stent coupled to the inner catheter shaft;

- providing an aspiration catheter configured for slidable insertion in the outer catheter shaft;

- providing a guidewire having an expandable filter coupled thereto;

- inserting the guidewire into a blood vessel;

- advancing the guidewire to a position where the expandable filter is disposed distally beyond a region of interest;

- expanding the filter;

- advancing the catheter system over the guidewire to a position where the balloon is disposed proximally of the region of interest;

- expanding the balloon;

- removing the inner catheter shaft from the outer catheter shaft;

- flushing the embolic debris towards the expandable filter through the flushing port of the catheter system, whereby the filter collects the embolic debris;

- slidably inserting the aspiration catheter in the outer catheter shaft;

percutaneously removing embolic debris material from the filter using the aspiration catheter; and
removing the filter containing embolic debris material from the blood vessel.

73. (Withdrawn) The method of claim 72, wherein the distal flushing port of the catheter system is defined by a distal end of the outer catheter shaft, and wherein the step of flushing the embolic debris towards the expandable filter through the flushing port of the catheter system includes flushing the embolic debris towards the expandable filter through the distal end of the outer catheter shaft.

74. (Withdrawn) The method of claim 72, further comprising the step of deploying the stent.

75. (Withdrawn) The method of claim 74, wherein the stent is held in an undeployed configuration by a sleeve disposed on at least a portion of the stent, and wherein the step of deploying the stent includes removing the sleeve from the stent.

76. (Withdrawn) The method of claim 73, including providing a perfusion fluid and further comprising the step of introducing a perfusion fluid into the outer catheter shaft.

77. (Withdrawn) The method of claim 76, including providing an infusion port proximal the balloon and further comprising the step of introducing the perfusion fluid into the outer catheter shaft through the infusion port.

78. (New) The medical device of claim 53, further comprising an aspiration catheter configured for slidable insertion in the outer catheter shaft.

79. (New) The medical device of claim 68, further comprising an aspiration catheter configured for slidable insertion in the outer catheter shaft.

80. (New) The medical device of claim 68, further comprising an aspiration catheter configured for slidable insertion in the inner catheter shaft.